CRATIRIA

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Cratiria Marbach, *Biblioth. Lichenol.* 74: 160 (2000)

From the Greek *krater* (a basin, jug or mixing bowl), in reference to the apothecia, which resemble such in cross-section.

Mannia Trevis., *Rev. Period. Lav. Acad. Sci. Padova* 5: 77 (1857), *nom. illeg.*, *non Mannia* Opiz, *Naturalientausch* 12: 646 (1828).

Type: *C. lauricassiae* (Fée) Marbach

Thallus crustose, superficial, thick, continuous to rimose and areolate, verruculose. Prothallus not apparent or visible as a thin dark brown, dark grey or black marginal line. Isidia granular to coralloid, or absent. Upper surface whitish, grey, yellow, yellow-brown or brown, corticate, often with a distinct epicortex. Medulla and lower cortex usually present, rarely absent. Ascomata apothecial, lecideine, adnate to sessile; disc black or reddish black, ±plane or weakly convex or concave, pruinose or not; margin usually persistent. Excipulum with a dark inner and outermost part, usually with a paler median part containing lichen substances; lower section of the pale part open or closed. Epihymenium yellow, orange or brown; hymenium colourless, often inspersed with oil globules, occasionally oil globules visible within cells of paraphyses; hypothecium pale brown to dark brown or black. Paraphyses simple or sparingly branched; apical cells enlarged, usually pigmented. Asci clavate, *Cratiria*-type, with (4–) 8 ascospores; apex wall layers thickened; apex amyloid, with a distinct non-amyloid ellipsoidal axial mass. Ascospores *Buellia*- or *Cratiria*-type (resembling early stages of *Dirinaria*-type), olive, olive-brown or brown, 1–3-septate, ellipsoidal, thick-walled, with weak to strong apical wall thickenings; apical internal wall-thickenings appearing before the septum is inserted (type-B ontogeny); torus present or not; outer wall weakly to strongly ornamented. Conidiomata pycnidial, immersed in the thallus; conidiophores of type V (*sensu* Vobis, 1980), acrogenous. Conidia bacilliform to narrowly ellipsoidal.

Cratiria is a pantropical-subtropical genus of c. 20 species, six of which occur in northern and eastern Australia where they grow on bark or wood in coastal woodland, rainforest and monsoon forest.

References

Marbach, B. (2000), Corticole und lignicole Arten der Flechtengattung *Buellia sensu lato* in den Subtropen und Tropen, *Biblioth. Lichenol.* 74: 1–384.

Nordin, A. (2001), *Buellia* species with pluriseptatate spores and the Physciaceae (Lecanorales, Ascomycotina), *Symb. Bot. Upsal.* 33(1): 1–126.

Vobis, G. (1980), Bau und Entwicklung der Flechten-Pycnidien und ihrer Conidien, *Biblioth. Lichenol.* 14: 1–141.

Key

1 Ascospores 3-septate.....**3. C. lauricassiae**
1: Ascospores 1-septate.....2

2 Hymenium inspersed with oil globules.....3
2: Hymenium not inspersed with oil globules.....4

3 Excipulum K–.....**4. C. melanochlora**
3: Excipulum K+ orange-red.....**1. C. aggrediens**

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http://www.anbg.gov.au/abrs/lichenlist/Cratiria.pdf (2011).

4 Ascospores with distinct apical wall-thickenings..... **5. C. obscurior**
4: Ascospores with weak or no apical wall thickenings…… 5

5 Ascospores 17−21 × 6−8 µm..... **6. C. rutilanoides**
5: Ascospores 20−25 × 9−13 µm.....**2. C. americana**

1. Cratiria aggrediens (Stirt.) Marbach, *Biblioth. Lichenol.* 74: 165 (2000)

Lecidea aggrediens Stirt., *Proc. Roy. Phil. Soc. Glasgow* 11: 313 (1879); *Buellia aggrediens* (Stirt.) Zahlbr., *Cat. Lich. Univ.* 7: 333 (1931). T: Nilgherries, India, *Watt s.n.*: holo: BM.

Illustration: B.Marbach, *op. cit.* 168, fig. 72.

For further synonymy, see Marbach (2000).

Thallus continuous to markedly rimose and areolate, 2−5 cm wide; prothallus black. Upper surface yellow-white to yellow-grey; upper cortex 15−55 µm thick, with a distinct colourless epicortex 5−15 µm thick. Lower cortex 15−55 µm thick. Apothecia 0.8−1.2 mm wide, sessile; margin moderately to very thick; disc black, concave or plane, yellow-pruinose. Excipulum 70−110 µm thick, carbonaceous; median part yellowish (but often only seen in thin section), K+ orange-red or red. Epihymenium 5−10 µm thick, yellow-grey, with granular crystals that are soluble in K; hymenium 80−130 µm thick, colourless, inspersed; hypothecium 120−220 µm thick, carbonaceous. Paraphyses 1.5−1.9 µm thick; apices 2.5−3.0 µm wide, with colourless or pale brown caps. Asci usually 8-spored. Ascospores dark olive-green to dark olive-brown, 1-septate, 17−28 × 8−13 µm; apical region often slightly elongate, with weak apical wall thickenings; outer wall strongly ornamented. Pycnidia black, c. 0.05 mm wide; conidia bacilliform, 4–5 × 1.0–1.2 µm.

Chemistry: Thallus, K– or K+ yellow, C–, P–, UV+ orange; containing arthothelin (major), thuringione (major), 4,5-dichloronorlichexanthone (minor), 3-*O*-methylthiophanic acid (trace), ±6-*O*-methylarthothelin (minor or trace), ±thiophanic acid (trace), ±norstictic acid (minor or trace), ±connorstictic acid (trace).

Occurs in on bark in coastal forests of eastern Qld and north-eastern N.S.W.; also in Africa, Asia, Central and South America and New Caledonia.

Qld: 3 km S of Forrest Beach, 16 km SE of Ingham, *J.A.Elix 15909 & H.Streimann* (CANB); Newell Beach, 5 km NE of Mossman, *J.A.Elix 17441 & H.Streimann* (CANB). N.S.W.: Mount Lindsay Hwy, 1 km S of Wilsons Downfall, *J.A.Elix 39588* (CANB).

This lichen is characterised by the yellow-white to yellow-grey thallus, the yellow-pruinose apothecia, the comparatively large, 1-septate ascospores, the K+ orange-red or red excipulum, and by the presence of arthothelin and thuringione in the thallus.

2. Cratiria americana (Fée) Kalb & Marbach, *in* B.Marbach, *Biblioth. Lichenol.* 74: 169 (2000)

Lecidea parasema var. *americana* Fée, *Essai Crypt. Écorc.* Suppl. 1: 101 (1837); *Buellia americana* (Fée) Zahlbr., *Cat. Lich. Univ.* 7: 334 (1931). T: Serra d'Estrella, Minas Gerais, Brazil, *Warming 90*: neo: M *n.v.*, *fide* K.Kalb & B.Marbach, *loc. cit.*

Lecidea modesta Kremp., *Vidensk. Meddel. Dansk. Naturhist. Foren Kjøbenhavn* 1–4: 23 (1873), *nom. illeg.*, *non Lecidea modesta* Müll.Arg., *Flora* 54: 403 (1871); *Buellia modesta* (Kremp.) Müll.Arg., *Flora* 64: 524 (1881). T: Serra d'Estrella, Minas Gerais, Brazil, *Warming 90*: holo: M *n.v.*

Illustration: B.Marbach, *op. cit.* 171, fig. 74.

Thallus weakly to markedly verruculose, sparingly to strongly cracked, 3−4 cm wide; prothallus black. Upper surface white, whitish grey, grey to yellow-grey; upper cortex 15−20 µm thick, lacking an epicortex; lower cortex 15−20 µm thick. Apothecia 0.6−0.7 mm wide, sessile; margin distinct, persistent, moderately to very broad; disc black or often reddish, epruinose, weakly concave to plane. Excipulum 70−90 µm thick, dark brown, with a paler central part which is open below, K+ yellow then red, forming needle-like crystals. Epihymenium 7−9 µm thick, red-brown to orange; hymenium 100−110 µm thick, colourless, not inspersed; hypothecium 120−140 µm thick, brown, extending downwards. Paraphyses 1.7−2.0 µm thick; apices 3.0−3.5 µm wide, with brown caps. Asci 8-spored. Ascospores

olive-brown to brown, 1-septate, 20−25 × 9−13 µm, with weak or no apical wall thickenings; outer wall distinctly ornamented. Pycnidia not seen.

Chemistry: Thallus K+ yellow then red, C–, P+ yellow-orange; containing atranorin (minor), norstictic acid (major), connorstictic acid (minor or trace).

Rare on bark in coastal and hinterland forest in N.S.W. and Vic.; also in Central and South America and Papua New Guinea.

N.S.W.: Queens Head area, Limeburners Creek Nature Reserve, 15 km S of Crescent Head, *J.A.Elix 43584* (CANB). Vic.: Maffra, *F.R.M.Wilson 759 p.p.* (G).

Characterised by the white to grey or yellow-grey thallus, the reddish or black, epruinose apothecia, the non-inspersed hymenium, ascospores with weak or no apical wall thickenings and by the presence of atranorin and norstictic acid.

3. **Cratiria lauricassiae** (Fée) Marbach, *Biblioth. Lichenol.* 74: 160 (2000)

Lecidea lauricassiae Fée, *Essai Crypt. Écorc. Suppl.* 1: 101 (1837); *Mannia lauricassiae* (Fée) Trevis., *Rev. Period. Lav. Acad. Sci. Padova* 5: 77 (1857), *nom. inval.*; *Buellia lauricassiae* (Fée) Müll.Arg., *Rev. Mycol.* 9: 85 (1887); *Diplotomma lauricassiae* (Fée) Szatala, *Magyar Bot. Lapok.* 31: 123 (1932). T: Seebpore, Calcutta, West Bengal, India, *Kurz s.n.*: neo: UPS *n.v.*, *fide* A.Nordin, *Symb. Bot. Upsal.* 33(1): 74 (2001).

For further synonymy, see A.Nordin (2001).

Illustrations: B.Marbach, *op. cit.* 162, fig. 71; A.Nordin, *op. cit.* 13, fig. 2; 16, fig. 4E, F; 21, fig. 8; 31, fig. 13B; 74, fig. 30 (2001).

Thallus continuous to verruculose, granulose or cracked, 2−5 cm wide; prothallus dark brown to black. Upper surface whitish grey to greenish grey; upper cortex 15−25 µm thick, lacking an epicortex; lower cortex 15−25 µm thick. Apothecia 0.2−2.2 mm wide, sessile, often crowded but rarely confluent; margin distinct, persistent, enclosing disc in young apothecia; disc black, epruinose, plane or weakly convex. Excipulum 45−130 µm thick, dark brown in inner and outer parts, paler in the median part, K+ yellow then red, forming needle-like crystals. Epihymenium 7−9 µm thick, dark brown, K−; hymenium 75−85 µm thick, colourless, not or sparingly inspersed; hypothecium 100−190 µm thick, carbonaceous. Paraphyses c. 2 µm thick; apices 3.5−4.5 µm wide, with dark brown caps. Asci usually 8-spored. Ascospores dark olive-green to dark olive-brown, 3-septate at maturity, 15−28 × 4.5−8.5 µm, occasionally with 1 or 2 additional transverse septa, with apical and septal wall thickenings; outer wall ornamented. Pycnidia black, c. 0.08 mm wide; conidia bacilliform, 4–6 × 1 µm.

Chemistry: Thallus K+ yellow then red, C–, P+ yellow-orange; containing atranorin (major or minor), norstictic acid (major), connorstictic acid (minor).

Occurs in on bark and wood in tropical forest and woodland in north-eastern W.A., N.T. and Qld; also in Asia, North, Central and South America, Papua New Guinea, New Caledonia and Vanuatu.

W.A.: 16 km NW of King Edward River Stn (Doongan Stn), Couchman Ra., *J.A.Elix 27975B, H.T.Lumbsch & H.Streimann* (CANB). N.T.: Howard Springs Nature Park, 37.5 km SE of Darwin, *J.A.Elix 36734*, *36735* (CANB). Qld: Kurrimine Beach, just N of caravan park, *J.A.Elix 38355* (CANB).

Cratiria lauricassiae is characterised by the white, grey to greenish grey thallus, the black epruinose apothecia, the 3-septate ascospores and by the presence of atranorin and norstictic acid.

4. **Cratiria melanochlora** (Kremp.) Marbach, *Biblioth. Lichenol.* 74: 183 (2000)

Lecidea melanochlora Kremp., *Flora* 59: 250 (1876); *Buellia melanochlora* (Kremp.) Müll.Arg., *Flora* 68: 510 (1885). T: Rio de Janeiro, Brazil, *A.Glaziou 6293*: lecto: M, *fide* H.Imshaug, *Farlowia* 4: 496 (1955).

[*Buellia gerontoides auct. non* (Stirt.) Imshaug: R.B.Filson, *Checklist Austral. Lichens*, 1983]

Illustration: B.Marbach, *op. cit.* 185, fig. 81.

Thallus continuous to rimose and areolate, moderately to strongly verruculose or subgranular, 3−5 cm wide; prothallus dark grey to black. Upper surface yellow, yellow-grey

or yellow-brown; upper cortex 30−35 µm thick, with a distinct colourless epicortex c. 10 µm thick; lower cortex 30−35 µm thick. Apothecia 0.8−1.3 mm wide, sessile; margin moderately to very broad; disc black, yellowish-pruinose, initially concave to plane, becoming convex with age. Excipulum 60−100 µm thick, carbonaceous throughout, K−. Epihymenium 5−10 µm thick, yellow-grey, yellow-orange to yellow-brown, with granular crystals that are soluble in K; hymenium 80−120 µm thick, colourless, inspersed; hypothecium 190−240 µm thick, carbonaceous. Paraphyses 1.5−1.8 µm thick; apices 2.5−3.0 µm wide, with a colourless or pale brown cap. Asci usually 8-spored. Ascospores dark olive-green to dark olive-brown, 1-septate, 16−23 × 7−11 µm; apical region often slightly elongate; spore wall of uniform thickness or with weak apical thickenings; outer wall strongly ornamented. Pycnidia black, c. 0.05 mm wide; conidia bacilliform, 3–4 × 0.9–1.1 µm.

Chemistry: Thallus, K– or K+ yellow, C–, P–, UV+ orange; containing arthothelin (major), thuringione (major), 4,5-dichloronorlichexanthone (minor), ±6-*O*-methylarthothelin (minor), ±thiophanic acid (trace), ±3-*O*-methylthiophanic acid (trace), ±norstictic acid (minor or trace), ±connorstictic acid (trace).

Occurs on bark in coastal forest in eastern Qld and north-eastern N.S.W.; reported here for the first time from Australia. Also in South America, Papua New Guinea and the Hawaiian Islands.

Qld: Coochiemudlo Is., Moreton Bay, *J.A.Elix 10230* (CANB); Kurrimine Beach, just N of caravan park, *J.A.Elix 38342, 38349* (CANB). N.S.W.: Queens Head area, Limeburners Creek Nature Reserve, 15 km S of Crescent Head, *J.A.Elix 43583, 43587* (CANB).

This species is characterised by the yellow-white to yellow-grey thallus, the yellow-pruinose apothecia, the comparatively large, 1-septate ascospores, the K– excipulum and by the presence of arthothelin and thuringione.

5. Cratiria obscurior (Stirt.) Marbach & Kalb, *in* B.Marbach, *Biblioth. Lichenol.* 74: 186 (2000)

Pyxine obscurior Stirt., *Trans. & Proc. Roy. Soc. Victoria* 17: 70 (1881). T: Fassifern, Qld, 9 Dec. 1878, *F.M.Bailey 236*: holo: BM.

For further synonymy, see Marbach (2000).

Illustration: B.Marbach, *op. cit.* 191, fig. 84.

Thallus weakly to distinctly verruculose, sparingly rimose to areolate, 1.5−4.0 cm wide; prothallus black. Upper surface white, whitish grey, grey to yellow-grey; upper cortex 15−25 µm thick, lacking an epicortex; lower cortex 20−40 µm thick. Apothecia 0.6−1.0 mm wide, sessile, often crowded and ±distorted; margin distinct, persistent, moderately to very broad; disc black, epruinose, weakly concave to plane or weakly convex. Excipulum 50−80 µm thick, dark brown in inner and outermost parts, paler in the median part which is open below, K+ yellow then red forming needle-like crystals. Epihymenium 7−9 µm thick, red-brown to dark brown, K−; hymenium 70−90 µm thick, colourless, not or only a little inspersed; inspersed paraphyses occasionally with granules confined to the outer part of the paraphyses or aggregating in the lower part of the hymenium; hypothecium 70−120 µm thick, dark brown to black, carbonaceous. Paraphyses 1.5−2.0 µm thick, occasionally containing oil globules; apices 3.0−4.5 µm wide, with brown caps. Asci 8-spored. Ascospores olive-brown to brown, 1-septate, 12−19 × 6−8 µm, with distinct apical and median wall thickenings; outer wall moderately ornamented. Pycnidia black, c. 0.1 mm wide; conidia bacilliform, 4.5–5.5 × c. 1.2 µm.

Chemistry: Thallus K+ yellow then red, C–, P+ yellow-orange; containing atranorin (major or minor), norstictic acid (major), connorstictic acid (minor).

Very rare on bark in forest in N.T. and eastern Qld; also in Africa, Asia, Central and South America and the Hawaiian Islands.

N.T.: 'Pethericks Rainforest', Litchfield Natl Park, 39 km WSW of Batchelor, *J.A.Elix 27566, H.T.Lumbsch & H.Streimann* (CANB).

Characterised by the white to grey thallus, the black, epruinose apothecia, the 1-septate ascospores, inspersed paraphyses and by the presence of atranorin and norstictic acid.

6. Cratiria rutilantoides Marbach, *Biblioth. Lichenol.* 74: 196 (2000)

T: ascent to Bunya Mtns, c. 12 km NNE of Mt Mowbullan, Qld, 26°50'S, 151°38'E, alt. 680 m, July 1988, *K.Kalb 19215 & R.W.Rogers*; holo: Herb. Kalb *n.v.*

Illustration: B.Marbach, *op. cit.* 198, fig. 88.

Thallus weakly verruculose, sparingly to markedly rimose, 3−4 cm wide; prothallus absent. Upper surface white to whitish grey; upper cortex c. 15 µm thick, lacking an epicortex; lower cortex c. 15 µm thick. Apothecia 0.8−1.0 mm wide, sessile; margin persistent, moderately broad; disc reddish, epruinose, plane. Excipulum c. 50 µm thick; innermost and outermost parts black, slightly paler in the centre which is closed below, K+ yellow then red, forming needle-like crystals. Epihymenium 7−10 µm thick, orange-red; hymenium 100−120 µm thick, colourless, not inspersed; hypothecium 180−240 µm thick, carbonaceous. Paraphyses 1.5−1.8 µm thick; apices 2.5−3.0 µm wide, with brown caps. Asci 8-spored. Ascospores dark olive-brown, 1-septate, 17−21 × 6−8 µm, with weak apical and median wall thickenings; outer wall ornamented. Pycnidia not seen.

Chemistry: Thallus K+ yellow then red, C–, P+ yellow-orange; containing atranorin (major or minor), norstictic acid (major), connorstictic acid (minor).

Very rare on bark in south-eastern Qld; also in the Hawaiian Islands.

This species is characterised by the white to whitish grey thallus, the reddish, epruinose discs, the small, 1-septate ascospores, the non-inspersed hymenium and by the presence of atranorin and norstictic acid.